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An Inaugural Essay,
on
Gun shot wounds,
of the Intestines;
Accompanied by a case.
Submitted to the Medical faculty
of the
University of Pennsylvania;
For the degree of
Doctor of Medicine,
By
Frederick Nash. Ogden,
of Louisiana.—

Philadelphia January 1st 1829—

Before entering particularly on the subject of the nature and treatment of wounds of the intestines, I shall offer a few remarks on gun shot wounds in general. — The application of gun-powder to the art of warfare has added this species of accident to the already swollen list of sufferings to which flesh is heir. — The wounds inflicted by the instruments of ancient warfare, such as arrows, spears and axes are placed under their appropriate heads of punctured, penetrating, & incised wounds, while the injuries caused by this powerful agent of modern invention, differing in symptoms, & requiring a different mode of treatment, have been considered by Hunter and subsequent writers among the class of contused wounds. — By gun shot wounds we are understood to include all injuries caused by explosions by fire arms, shells, by splinters on board men of war &c &c — They may be considered as simple, when occurring with an injury of soft parts of ordinary importance, or compound when at the same time a bone has been fractured

a large artery or nerve wounded, or some important viscus implicated with the injury. — This name has been given to these accidents from the circumstance of their occurring in time of & from the manner in which they are produced. It is a lamentable fact that the healing art, tho respected & studied from the earliest ages, did not keep pace with the spirit of improvement that stirred men on to make constant progress in the arts, & thereby make themselves liable thro their bold innovations to the most serious accidents. —
Thus at the close of the 14th century, when these accidents first occurred, from extreme ignorance, & the low state of surgical knowledge, we find that the greatest dread & consternation were spread among the surgeons & trembling soldiers, from a belief that there was no eye to pity nor arm to save them. — In the plenitude of their dread, we see the once skillful army surgeon degrading his profession & resorting to prayers, charms, & incantations as the principal part of his treatment in this new species of wounds. — And in reading the philosophical

disquisitions of the writers of that day on this subject, we find more to amuse than to instruct us — They supposed from the livid appearances of the lips of the wounds, and from the which sometimes supervened, that they were certainly poisonous, & accordingly adopted their treatment to accidents of this nature. — And in their attempt to account for this singular appearance of these wounds, they supposed that either the ingredients of the powder were poisonous, or that something similar to electrical violence was committed by the balls. — Paré tells us that while the king of France was besieging Turin, the besieged & the besiegers mutually believed that their enemies had poisoned their balls, so cruel & intractable were their wounds. — But knowledge is the great corrector of superstition and it remained for modern surgeons, from the improvement they daily made not only in their own profession, but in Chemistry & the laws of projectiles, to explode at once the absurdity of

these doctrines, & to attribute the formidable conse-
quences of these injuries to the violence, contusion, & laceration
communicated to the wounded parts. — Boyer in his
Traité des maladies Chirurgicales, says that the severe
contusion occasioned by gun-shot wounds, forms their
characteristic difference from other wounds, & explains
the peculiar phenomena accompanying them. —
This degree of contusion depends principally on the
violence with which the missile is sent; for as
Hunter has observed, the divided parts not giving way
equally to the rapidity of the dividing body, they must
be in proportion greatly bruised. This brings us now to
speak of the most distressing symptom accompanying
gun-shot wounds, & by which they are principally
to be distinguished from those arising from other accidents. —
This is the disposition of the tract of the wound to throw
off a slough, by which a new & dangerous
train of symptoms present themselves, which if the
surgeon is not prepared to expect, fatal consequences

may ensue to upbraid him for his ignorance.—
From the circumstance of a part being often
deadened, the nature or extent of the injury cannot
be completely ascertained until after the part that has been
killed has come away, which generally takes place between
the 5th & 12th days, during which time the patient should
be closely watched.— it often happens that some
important viscus has been partially killed, or an artery
deadened by a wound, but we are not aware of it from
any symptom, until after the slough which forms
has been separated, when we are presented if an
intestine has been injured with an escape of its contents,
or if an artery has suffered with a profuse hæmorrhage
terminating frequently in the death of the patient.—
In fact instances are recorded where the surgeon sup-
posing from the time that had elapsed, that the period
of danger has over, has left his patient at night doing
as he supposed very well, when to his sad mortification he finds him
in the morning dead, weltering in his own gore.—

By gun-shot wounds great mischief is frequently done to vital parts - but the extent of the injury will depend on the nature of the part wounded, & the violence ~~the violence~~ with which the wound has been inflicted. — We have also to observe that gun-shot wounds never heal by the first intention, or by means of the adhesive inflammation - This is owing to the parts being deadened, & to the process of sloughing which consequently ensues, which is a more violent action, & in gunshot wounds supersedes the inflammatory process, which in accidents of a milder nature always accomplishes the first step towards a cure — But this is not the case in every wound of this nature, nor always through the whole tract of the same wound, which difference arises from the variety in the velocity of the body projected. — For we often find at the exit of the ball, where it is somewhat spent, that the bruise is not so violent, & that the wound heals there by the first intention, — while at its entrance, from the great

contusion & death of parts, the cure is slowly effected by the 2nd intention, or by suppuration & granulation — This fact of the lower orifice healing first, says Hunter, is common to all wounds, & is owing to the tumefaction which generally arises from the extravasated fluid always depending to the lower orifice, keeps the sides of the wound together, obliging it to heal, if the parts have not been deadened — This he says is evidently the case in Hydrocele after the introduction of the seton — Gun shot wounds partaking of the nature of contused wounds, do not bleed freely — Our learned professor of surgery Dr Gibson in his work on this subject, says that this indisposition of these wounds to bleed, is owing to the paralysis of the nerves of the vessels, & to their being so completely imbedded in the cellular tissue, that they cannot throw out their blood — Large arteries may be torn across without losing much blood, — while a vessel torn will throw out more blood than one which has been entirely divided. — We are however told

that if an artery of the largest class, such as the femoral or carotid were divided, the sufferer would immediately die. It may not be improper here to substitute the enquiry, whether a man would die from hæmorrhage, were his femoral artery to be divided & left to bleed? On a suggestion of this kind made to me last spring by a medical friend I was induced to try the experiment & accordingly divided the femoral artery of a cat. The hæmorrhage was profuse & continued for some time, when it ceased spontaneously. The animal seemed greatly debilitated from the loss of such a quantity of blood, but no further symptoms developed themselves, nor did a secondary hæmorrhage ensue. One experiment in attestation of a fact of this importance, we are aware, cannot go far towards establishing its truth, but we purpose devoting further attention to the subject, not with a view of deriving any practical importance, from establishing the fact, for no surgeon, tho certain of the life of his patient, would so

disgrace his profession, as to neglect to secure a divided femoral or carotid artery, but merely to ascertain the truth as a curious anatomical fact.— In the sciences of Anatomy & Physiology as in every other science, there may exist many facts which are only important, as they are novel & difficult to be explained— Of the many varieties noticed by all writers on this subject, as existing between one gun-shot wound & another, we shall forbear to speak, as it would be foreign to our purpose to treat of them so minutely.— We shall merely state that they may all be traced to the difference arising from the velocity of the body projected.— There is another very peculiar appearance frequently occasioned by discharges from fire arms— From the extreme ignorance prevailing with regard to the nature of these accidents when they first attracted the notice of army surgeons, it was supposed that a ball might injure parts of the body in two ways, viz. by actually striking them, & by passing near to them without touching them.— This last kind of injury & the

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one to which we now allude, was called a wind-contusion.— John Bell accounts for the wonderful tales that a man might be killed by the "wind & whiff" of a ball, in this way— He says men frequently fall in the field of battle, & are carried into the hospitals dying & unable to speak, when there was no wound to be seen, not even the slightest bruise of the skin.— This connected with the foolish notions they entertained about the poisonous nature of these wounds was sufficient to increase the alarm of the earlier surgeons & to induce them to believe that death might be caused in this way, their fears not allowing them time to reflect on the absurdity of the idea.— Injuries caused in this way are sometimes very serious, but the above manner of accounting for them is too ridiculously absurd to be noticed,- and the difficulty entirely disappears when such men as Ambrose Paré & John Bell tell us, the chest may be struck by a ball, the ribs yield & may escape from injury, while the lungs are injured and blood extravasated into the chest— that from a blow on the belly, the liver or spleen may burst & no outward

wound be perceptible - and that there is frequently an effusion of blood upon the brain from the pericranium's being seperated from the skull, though there appears no outward injury. — The man dies without any external wound, & his fellow soldiers immediately say that he was killed by the wind of some great ball — But these wind contusions as they have been improperly called, are now well known to be occasioned by the ball itself - its not entering the skin, is to be attributed to its ~~not~~ striking it in a sloping direction, & to its being reflected, or in some instances as Sand Cooper has observed, by the weight of spent balls. — Caused in this way, these wounds are more dangerous than those occurring with external openings, as the muscles are reduced to a gelatinous & pulpy mass from the severe contusion & extravasation of blood — We come now to speak more paticularily of gun-shot wounds of the intestines —

Anatomists have divided the human frame into three great cavities; that of the head, thorax, & abdomen, with the pelvic cavity — And according to the vital importance of the contents of these cavities to the general system, have surgeons classed the

danger of injuries done to them — Thus, so extensive & immediate is the importance of the brain to the well being of the vital economy, that death is almost the certain consequence of any considerable wound inflicted upon it. — Nor does the surgeon expect by the well defined principles of his profession, to accomplish much for the relief of his patient, who has received an extensive wound of the heart, pericardium or lungs. — But tho the danger may not be so immediate, still we have much to dread from wounds of the abdominal viscera — For notwithstanding the serious consequences that may result from an extensive gunshot wound for instance of the stomach or liver, there are other symptoms which the surgeon approaches to combat, with almost equal dread. — By the earlier writers we are told that wounds of the Tendons are at all times extremely dangerous, & here in the first place we have an extensive wound of the abdominal parietes, which is formed principally by a tendinous expansion. — Again we have to contend with what is still more to be dreaded, viz. peritineal inflamation, of which, more than two thirds of those who have received wounds of the Intestines invariably die. — A hernial protrusion

is also a frequent consequence of gun shot wounds of the abdomen, which should always be guarded against by a proper approximation of the sides of wound, & by the subsequent use of the truss.— Wounds of the Intestines have generally been divided into simple & complicated, that is as they occur with or without an injury of the muscular parietes — of this latter species of wounds we have instances, where from a blow on the belly, or from a fall, the intestines have been wounded, & extravasation even has taken place without any injury to the muscular parietes of the abdomen.— But in gun-shot-wounds this division cannot be adopted, as there must always be an external wound, except in those rare cases, where the intestines are injured by what has once supposed to be the wind of the ball, and we must consider them as taking place with or without protrusion.— When a surgeon is called to a gun shot wound of the abdomen, his first care is to know the extent of the injury, & whether any of its viscera have been wounded This he will not be able strictly to ascertain from the peculiar nature of these wounds to which we have already alluded —

He will always bear it in mind that it is an axiom in surgery, that unless some particular object is to be effected, he will not be authorized to increase the sufferings of his patient by unnecessarily probing the wound. We are told however that a wound of the intestines is indicated by an escape of chyle, bilious matter, or fæcal air from the external wound but when the injured bowel lies deeply imbedded in the abdomen, the injury done to it cannot be immediately ascertained, as these symptoms cannot manifest themselves. — Thus we are not to conclude that the intestinal canal has not been wounded, merely because we have no protrusion, or are not immediately presented with an escape of chyle, bilious matter &c, for it may be severely injured and we will not be warned of it for some time by any of the above mentioned symptoms. — Pitcher & other writers have a set of symptoms which they call particular, as denoting what viscus is injured, viz, bloody urine when the kidneys & bladder are wounded, vomiting of blood when the stomach had received a wound, & a discharge of blood with faces ~~when~~ in cases of injury of the intestines. — But tho we are not to rely entirely on the local or general symptoms in forming our opinion of the extent of the injury we must

condemn in toto the absurd practice of probing & giving injections to
wer what, when known, does not materially alter our course of practice.
Among the general symptoms accompanying a gun shot wound of
the intestines, we have a small, feeble & contracted pulse, a pallid
countenance, cold extremities, great & sudden debility, vomi-
ting & tension of the abdomen with pain, inspirations short & atten-
ded with pain. — But we are apprized by surgeons that all these
symptoms have been noticed in persons of very timid & nervous habits,
when no part but the muscular parietes of the abdomen had
been wounded. While on the other hand cases are to be met with in the
annals of surgery, where persons have been shot, & the ball has
passed thro the belly & they have entirely recovered without any
unpleasant symptoms. — Hennen mentions the case of a man,
who after being shot thro the belly with a ramrod, which stuck
so fast in the spine as to be with difficulty removed, entirely recovered
in a short time. — But in all cases of gun shot wounds of the
intestines, after the deadened part has been seperated, we will
be apprised of the injury by the escape of faces thro the wound, or
by a discharge of blood by the anus. —

Wounds of the small intestines, & particularly of the duodenum are attended with more danger than those of the large, as there will be more difficulty in nourishing the patient & more danger of effusion. — Also from its important relation to the general system greater danger is to be apprehended from a wound of the duodenum, as it has been called by some anatomists the second stomach. — In the first class of our division of these wounds, the surgeon will be at no loss. — He has here the intestine protruding a considerable distance, extensively wounded, & accompanied by the omentum. — In these cases, unless the wound is very extensive, the protrusion of the villous coat of the bowel closes the orifice entirely, & prevents the escape of its contents. — This presents a truly formidable appearance, but the wound is not always to be considered certainly fatal, for Larrey relates a case, where a man was struck by a ball which wounded the ileon — the intestine protruded at the external wound with its two ends entirely separated and much distended, yet the patient completely recovered. — This proves incontestably that wounds amounting to an entire

division of the intestinal canal are not always to be considered as irreparable injuries. — It is said that the intestine undergoes a diminution of its diameter at the place of the wound — When this constriction is inconsiderable, no great inconvenience is felt, except what the patient experiences from colicky pains, after he has been improperly taking food that will cause flatulency. — These colicky pains sometimes go off entirely & never return, which would lead us to suppose that the intestine had regained its original diameter. — We are also told by Ritcher, that from a considerable constriction of the intestine after the healing of a wound inflicted upon it, he has seen patients carried off by a severe cholera morbus; — in other cases the contents of the intestinal canal had accumulated above the wounded part, & the intestine itself burst. — When the bowel has been wounded, but does not protrude, the intestinal matter continues to be discharged for a considerable time thro the external wound, & even in some cases during the patients life the discharge is kept up thro a fistulous opening, or artificial anus — this discharge is however frequently stopped by

judicious treatment or by means of a safe operation — Strange as it may appear, Hennen mentions cases where balls shot into the abdomen have been discharged with the stools — He & it is evident that the intestine had been wounded, & even considerably ~~wounded~~ lacerated. — A very distressing consequence of wounds of the intestines is an extravasation into the peritoneal cavity of chyle, indigested food, faeces, blood &c — This is a very frequent consequence of these wounds, & when it does take place, the termination of the accident is almost always fatal, from the universal peritoneal inflammation to which it gives rise. — To this part of our subject Travers has devoted much attention, & his opinions are highly interesting. He says extravasation is by no means so frequent an occurrence as he would be led to suppose. — But his remarks apply more particularily to penetrating wounds of the intestines, & unfortunately extravasation & artificial anus are too frequent consequences of injuries done to the bowels by discharges from fire arms. — He says also that it is a great mistake with surgical writers to speak of the thoracic cavity

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and the abdominal cavity, when in anatomical strictness there exists no idle vacant space in the whole body, & that the thorax & abdomen are entirely filled with their contents, thus affording always a gentle pressure on the edges of the wound. This with the speedy disposition of the external coat of the intestine, which is a serous membrane to take on the adhesive inflammation, prevents in many cases any effusion of their contents. Notwithstanding however what Travers has said on the subject we have adopted the word cavity as it is still employed by many writers. And as regards the speedy healing of the wound by the first intention, we may observe that in gun-shot wound of the intestines, their internal or mucous coat is always injured, & that suppuration frequently followed by ulceration, is always the consequence of mucous inflammation, which will prevent an adhesion by the adhesive inflammation, & also that the wound being generally so extensive, an effusion in a majority of cases must take place. But says Travers effusion will always be the consequence of these wounds, when the surrounding pressure is overcome by the natural action of the bowel tending to the expulsion of its contents, which

can only take place when the gut is full, & the wounds lenaive.— When however blood or air has been extravasated within the abdomen at the time of the injury, the resistance opposed to effusion will be less effectual, as those fluids will yield more readily to the action of the bowels, than the solids naturally in contact.— From the above remarks we may conclude that gunshot wounds of the Intestines are attended with more dangerous consequences than those which arise from penetrating wounds of the same tract; that artificial anus frequently forms, & that extravasation generally takes place, causing an universal peritoneal inflammation against which the curative skill of the surgeon is often exerted in vain. We shall now offer a few remarks on the treatment of these injuries, & then detail the particulars of an interesting case of the kind, to which many of the above observations will be seen to apply.—

The efficacy of the art of surgery in assisting the restorative process of nature in accomplishing cures where she has received an injury, is now established on such well defined principles, that in all cases where an injury has not been done

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to some essentially vital organ, we may reasonably promise relief.— In accidents of the human frame, is this truth more clearly evinced than in the present mode of treating gun shot wounds.— And for our improvement in this branch of surgical knowledge are we indebted to the accidental discoveries of Ambrose Paré, who with equal justice may be called the father of surgery, as Hippocrates has been styled the father of medicine.— From the false conceptions of the poisonous nature of these wounds, the earlier surgeons were in the habit of using cauterics, hot oils & in fact the most stimulating applications to the external wound, & in cases of perforation of the bowel they were so prodigal of the use of the needle, that one might have supposed they were tailors, & that they had adopted the practice of their shops in healing these injuries, & acted on the principle of the old proverb, that the immediate use of the needle was the only means by which they could effectually stop a rent whether occurring in cloth or in human intestines.— Nor did they hesitate to make free use of probes & injections to discover the

extent

extent of the injury — Paré says that after an engagement in which the havoc was immense, he dressed the wounded as far as his oils & cauteries went — but they failing, he was obliged to apply simple dressings to the other wounds, & then left them for the evening — he passed a sleepless night, thinking how many poor creatures were suffering from a neglect of their wounds, & arose early in the morning to witness their horrible condition, when to his utter surprise he learned that those on whom the simple dressings had been applied, had rested well during the night, & found that they were free from ~~from~~ fever, & that their wounds appeared to be doing very well. — While on the other hand those whom he had treated in his usual way had been restless, had had much fever, & their wounds presented a very irritable appearance. — He immediately abandoned his former cruel treatment, & always afterwards made use of the mildest & most simple dressings. — Thus we see that by accident, some of the greatest discoveries in every science have been made — but unless these accidents happen

to men of genius, to men who from close observation & experience will be able to make advances in the sciences, from the hints they may derive from them, it will be in vain that nature thus endeavours to assist mankind to rival her stupendous works. — One of the most important improvements in modern Chemistry was the invention of the safety lamp by Sir H. Davy. But we are all aware that the miners themselves had frequently observed the very fact from which the hint of this invention had been suggested to the illustrious philosopher, & it remained for him by the application of his genius & observation to the laws of his science, to invent this lamp by the use of which many useful lives have been saved. — In wounds accompanied with protrusion, we should in the first place, if the wound of the intestine is considerable, connect the divided ends by means of a few stitches of the interrupted suture, as recommended by John Bell, & then return them into their cavity. — But a suture is only necessary, or even justifiable, when the gut is almost entirely divided. — Sir Astley Cooper in operating once

in a case of strangulated hernia, observed a large aperture in the sound part of the gut from which its contents were escaping he immediately included ~~the~~ the divided edges in his forceps, & secured them by means of a ligature, the ends of which he cut off close to the intestine - the patient got well & the ligature passed off by stool. - From this we learn that it is sometimes necessary to make use of the ligature, & that cases requiring its use are not always to be considered as desperate. - After the bowels have been returned it is sometimes necessary to make use of adhesive straps to prevent the escape of the whole of the contents of the abdomen. - Beyond this the surgeon can do little more - nature, assisted by the lightest dressings, rest, abstinence, & the occasional use of the lancet, must be trusted to, to accomplish the rest. - In a case like the one I am about to mention, the surgeon should never interfere with his probe - If he even suspects the ball to be lodged in the abdomen, he should not attempt to extract it unless it is within the reach of his fingers, for we have cases where the ball or slug is afterwards discharged with the stools. -

As regards dilating the sinuous, I shall say nothing, as the practice is now never adopted except to accomplish some immediate end. — The lancet, abstinence, & rest are our principal dependants — As the greatest danger we have to contend against is peritoneal inflammation we must strictly adopt the antiphlogistic plan of treatment. — Purging is improper, but we may use enemata — If however we think that time has been allowed for adhesions to form, we may venture to give castor oil, as it will be the safest purge. — The pain & tension of the abdomen may be allayed by the application of leeches, & by the warm bath & fomentations. — The suffering of the patient which is very great, may be quieted by the use of opium — his strength must be closely watched — if he sinks, we must support him by wine whey, beef tea, chicken water &c &c — but his whole diet at first should consist of barley water, or some slightly nourishing fluid. — the external dressings should be mild, & superficial — great attention should be paid to cleanliness when faces

escape, for nothing is more distressing to the ignorant sufferer than the discharge of excrements thro the wound & the filth arising from it. — Nor must we forget the advice of Scarpa, to suffer the external wound to close only in proportion as the faces resume their natural course with ease & regularity. — Patients who have recovered from these wounds should be cautious about their diet, & avoid flatulent & stimulating food. — They should keep their bowels regular, & watch the appearance of a hernial protrusion. — By pursuing these simple means patients recover in a short time from extensive wounds of the bowels. — When extravasation into the peritoneal cavity takes place, the posture of the patient should be such as to promote the escape of the effused fluid. — Some surgeons have adopted the practice, when irritation exists with local inflammation, pain & a fluctuating tumor marking the seat of extravasation, of evacuating the effused fluid by an opening. — But effusion frequently takes place without any of these signs — here the only addition to the strict antiphlogistic

plan of treatment, may be perhaps the application of a bandage round the abdomen, to keep up a compact state of all the parts therein contained. The fæces sometimes continue ~~contin~~ to be discharged thro an artificial anus, which tho in itself a distressing complaint, prevents an effusion of intestinal matter into the abdomen, by which provision the patient escapes the danger of peritoneal inflammation. Tho the patient is thus relieved from the danger of peritoneal inflammation, it now becomes the object of the surgeon to remove the inconvenience & danger resulting from the discharge kept up thro the artificial anus. Nature often effects a cure herself, assisted by rest & judicious pressure upon the wound. The cure tho is not always perfect a stercoraceous fistula remaining for some time, & it remained for our distinguished countryman Dr Physick, to whom modern surgery is proudly indebted for many valuable improvements, to accomplish a perfect removal of this dangerous filthy affection, by a safe operation.

The following case, tho it terminated fatally, is interesting, & may serve to illustrate some of the above remarks. — John Eden was admitted into the Pennsylvania Hospital on the 9th of September last, under the care of Dr. Barton, one of the attending surgeons of the house. — He received on the preceding night, a gun shot wound on the left side & principally within a space of 4 inches sq^re^ below the margin of the ribs chest, there were the marks of one slug & a few shot on the upper lateral part of the hip. — Within the above specified place, there were two ragged holes like the one on the hip, having the appearance of having been caused by slugs, & 15 or 20 of the shot seemed to have penetrated very deep. From the tension of the abdomen, & the pain experienced, its cavity was supposed to have been entered. — The symptoms on admission were a tense, & somewhat tympanitic

abdomen. A serous exudation of a slightly reddish hue was observed to issue from some of the openings — his respiration was short & painful — his bowels had not been opened for some time, nor his bladder evacuated — there was no fever — his countenance pretty natural, not pale & haggard — his stomach had been so much deranged that he had vomited every thing he had taken since the accident. — On the afternoon of the day of his admission into the hospital, a poultice was applied to the wound. 6 leeches were ordered to his abdomen, & a mild injection to open his bowels — He was kept on barley water lemonade for drink & nourishment during the day, & at night was ordered 40 gtts of laudanum every two hours, until sleep should be induced. — On the 10th he had less pain in the abdomen, & his shortness of breathing was relieved — he had also rested well during the night & seemed much better — his bowels had been opened, but only the fluid which had been injected came away. — Barley water still his only nourishment — Some fever was now perceived. —

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On the 11th & 12th no perceptible change — Laudanum was freely allowed, as his habits were rather intemperate — the oleaginous mixture was also given, but his bowels were not moved. — On the 13th his skin was rather perspirable — his countenance somewhat flushed & distressed — In the afternoon he took a dose of castor oil, & in the night his bowels were opened, & a good deal of fæcal matter was voided, but no blood, shot or slug was observed in it. — his abdomen ~~being~~ being still tympanitic & tense, 60 leeches were again applied to it — On the 14th & 15th his bowels were occasionally moved, & the discharges were natural & of a brownish hue, still tho, no foreign body had been observed — his pulse now began to flag, & baf tea was allowed him. —

By means of a probe it was ascertained that the slug hole on the hip communicated with one of those on the side — The second one on the side of the abdomen was not probed, as from the direction of the ball it was supposed to have entered the abdomen — his situation continued much the same for several days — large quantities of laudanum

was given him to procure sleep — he was complained of pain on the outer side of the hip, which was hot swelled & tense — his sufferings were so great that perspiration was induced by them — he was ordered more Laudanum, & his hip was directed to be rubbed with a liniment composed of Laudanum ℥j & of sweet oil ℥ß, which gave relief — On the morning of the 26th for the first time fecal matter was discharged from the largest wound of the side — his countenance was much distressed but he complained of no acute pain — Rhubarb was now allowed him in addition to his barley water & beef tea — On the following night he had a natural passage, but fecal matter continued to be discharged thro the wound — the patient being now much weaker chicken soup was allowed him — his abdomen was less tympanitic, but bubbles of air escaped from the wound when it was pressed — On the 19th of October he seemed to be getting worse — Emaciation was rapidly progressing — Opium was now ordered in the place of Laudanum, with a view

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to try to afford him as much relief as possible. — Pills of foxi fox ii each were given every two hours, & at night one every hour untill he slept. — Sloughing was now received to have commenced along some of the spinous processes & over the sacrum. — His pulse now was very high, 134 strokes in the minute, & his power of speech nearly gone. — In this condition he died on the 21st. — A post mortem examination presented the following appearances. — The stag hole from which facal matter first escaped, was found to open into a large & unnatural cavity, & thro it, into the Intestines at the posterior part of the caecum. — The opening into the Intestines was about an inch in diameter, or rather less. — The intermediate cavity above alluded to, was bounded above by the liver, & below it extended ~~to~~ nearly to Poupart's ligament. — In front it was bounded by the Psoas muscles, kidney & adjacent parts or portions of the abdomen, & on the outside & behind by the corresponding abdominal parietes. — It contained upwards of a pint of

fecal & sanious matter with some clots of blood.— In that portion of the os Ilium which bounds this cavity, & at the very thinnest part of the bone, there was a hole of nearly a half an inch in diameter, & of a round form — This hole opened into another cavity situated in the upper & outer part of the hip.— It extended to the Trochanter major below, & above to about three inches beyond the Crista Ilii, to the anterior superior spinous process before, & to about four inches from this point backwards.— Tho of a size to contain at least a pint of fluid, it did not however contain more than a half of a pint of a rather thin darkish matter, consisting of faces & some sanies.— The other cavity would contain about two pints, so that the two communicating thro the Ilium would have contained at least three pints.— The surface of these cavities was of a dark bluish hue, & exhibited something of a membranous character, of a tolerably smooth & shining appearance — In the smaller cavity, a small shot & two minute fragments of bone were found.— In the larger cavity a small shot —

was also found, & in a small pouch below the hole in the bone, & on the surface looking to this large cavity was found a slug of this size, O, & two small shot. — This slug had I imagine, struck the bone at the hole, & fractured it without passing through, & had injured the intestine in its passage, as the part injured seemed to be in a line corresponding with the slug hole in the side, & the hole in the bone. — The lower of the two slug holes that communicated with each other, also communicated with the smaller cavity or the one situated in the hip. — This communication resulted from ulceration; & hence we may account for the passage of facal matter out of it. —